

Dismantling the Zeiss (Contax) 50mm f/1.7 Lens

by
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This is a slightly modified version of an article that first appeared on my Web site (www.monopix.co.uk).

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Front Lens Group

First remove the trim ring using either a rubber tool or a rubber sheet. I used a rubber sheet with the top off a spray can that fitted perfectly into the front of the lens.



With the trim ring out of the way, three screws can be seen that hold the front ring of the lens in place. This, in turn, holds the front lens group in place. Remove the three screws and remove the front of the lens.



The front lens group is now loose and can be lifted out or tip the lens up and allow it to fall out into your hand or something else suitable. With the lens group out of the way, it is worth setting the aperture to f/16 and measuring the size of the aperture. This will help in recalibrating the aperture when refitting it later.



Here's the lens group.



If you need to separate the individual elements in the front lens group, unscrew the pin faced ring around the front element.



Aperture Assembly Removal

With the front lens group out of the way, the aperture assembly can now be lifted out. Note that the three screws that become visible after the front lens group is removed (you can see two of them in this picture) hold the aperture assembly together and don't, at this stage, need to be removed.



Here's the aperture assembly out of the lens. If you want to dismantle it, now unscrew the three visible screws.



With the screws removed, the parts of the aperture assembly can be separated and you will end up with what you see below. Note the small spring that holds the aperture actuator ring in position. Make sure you remove this before removing the ring and keep it safe.



Note how the aperture blades are fitted together before removing them.



Now the blades can be removed and cleaned.



Reassembly is straight forward but once the aperture blades have been refitted and the two parts which hold them all in place have been put back together, sit the assembly on top of something and place the aperture assembly housing over the top. This way you can easily reassembly everything without disturbing the aperture blades.

The aperture mechanism can rotate slightly within it's housing due to the three screws being in slots. Once you have the assembly in the housing and the screws loosely in place, rotate the inner assembly to get the maximum opening of the blades to be just the size of the hole in the centre of the assembly.



Once you have it adjusted correctly, pinch the screws up so they just hold. They must not be done up too tightly as they will protrude too far on the outside of the assembly and will bind with the aperture actuator ring. Remember this assembly is made of plastic so it's easy to overtighten things. With the screws pinched up, seal them to stop them coming undone.



When refitting the aperture assembly back into the lens body, further adjustment is required to adjust the minimum aperture. This is done by rotating the assembly in the lens body. Note the three screws that hold the assembly in the lens body are also in slots. Rotating the whole assembly in the lens body, with f/16 selected, will adjust the size of the aperture. Adjust it to be the size it was before dismantling. (You did make a note of it didn't you?)

Rear Lens Group

The rear lens group can be removed by simply using a suitable wrench in the two slots you can see either side of the rear element in the picture below. It is easier, though, if you remove the back of the lens first by removing the 4 outer screws visible in the picture.



With the screws out, the rear of the lens can be lifted off. Watch out for the ball bearing and spring that provide the click stop for the aperture ring. They normally sit in the hole marked by the red circle in the next picture.



Now lift off the aperture ring.



Now the sleeve which fits over the rear lens group can be removed. It's probably as easy, and safer, to grip the sleeve with a rubber sheet and turn it by hand rather than use the wrench which can slip and damage the rear element.



With the sleeve off, the rear lens group can be removed. At this point, the rear element will be loose so make sure you don't drop it. If you need to separate the rear elements, simply lift off the rear element and the middle one can be shaken out of the housing, along with it's spacer, leaving the front most one in place.

Helical

If you need to regrease the helical, you will need to remove the front and rear lens groups, the rear of the lens and the aperture assembly. All as described above. You also need to remove the focussing grip and the outer focussing ring. To do this, first set the lens to infinity and then remove the rubber grip from the focussing ring and loosen the three screws visible underneath. The ring now lifts off. It may need a wiggle to get it off.



The focussing ring has a C shaped piece inside it that the three screws are threaded into. You don't need to separate them like this but I've done it just to show them. It's worth noting how these parts fit onto the brass focussing ring in the body of the lens before lifting them off.



You will be left with just three main parts; the lens outer body, the inner focussing helical and the focussing ring that sits between the other two. The focussing ring is the brass one and has a fine thread on the outside to screw into the body and a coarse thread on the inside for the focussing helical. The red circle in the picture below identifies the guides which the focussing helical engages with to stop it from rotating. These will need to be removed to enable cleaning of the threads and to make reassembly easier but you won't be able to remove them yet (with the lens set to infinity) as there's insufficient room to do so.



Before separating the helical, it's wise to mark all three parts to show how everything lines up while at infinity. This will help to realign them later. I also measured the relative position of the inner helical to the outer body, as shown below, so that I could later confirm the helical was back in its correct position.



The following is how I would recommend splitting the helical. It's not exactly what I did, but then, I spent a couple of hours trying to get them realigned later. Hopefully, you won't need to.

Turn the focussing ring to push the helical forward until the two separate. Just as they separate, mark the relative position of the two. You also need to note the amount of rotation of the focussing ring that occurs. The marks applied earlier to show the relative positions of all three parts, when focussed at infinity, will help with this. With the helical out, continue turning the focussing ring until that too comes away from the body. While turning it, count the number of turns, including the amount you rotated it to push the helical out. Note the number.

With the helical separated, remove the two guides from the lens body.

Everything can now be cleaned and regreased.

Reassembling The Helical

First screw the focussing ring back into the body, the exact number of turns noted when removing it. The marks previously made on the focussing ring and the body, while everything was at infinity, should now line up. Screw the helical back into the focussing ring. The marks made when the two just separated should be approximately aligned as they re-engage. Screw the helical in until its mark, made with it at infinity, aligns with the marks on the other two parts. At this point, everything should be realigned for infinity. If you previously measured the position of the helical relative to the body, you can re-measure it now to check it's correct.

The problem now is refitting the guides. Because there is insufficient room to do so with the lens focussed on infinity, it's necessary to adjust it so the helical is moved forward to give some clearance. To prevent loss of the relative alignment of the parts, turn the focussing ring a little way and then, holding the focussing ring to stop it turning further, turn the inner helical back to realign its mark with the one on the lens body. The helical will move forward as you do this. Repeat this a few times until the helical is far enough forward to allow the guides to be slotted back into place. Refit the guides and turn the focussing ring back which should bring the helical back into place as well, now the guides are stopping it from turning.

Finally

Reassemble the rest of the lens in the reverse order to how it was dismantled. With the lens set back at infinity, when refitting the outer focussing ring, align the infinity mark on the distance scale with the indicator mark on the body. Don't refit the rubber grip at this stage as you'll need to check the infinity focus later.

With everything back together, either use a collimator to check the infinity focus or fit the lens to a camera and set the lens to infinity and check the focus on a distant subject. If any adjustment is required (and it almost certainly will be), loosen the three screws around the focussing ring and adjust as necessary. Retighten the screws and refit the rubber grip.